Volunteer Lake Assessment Program Individual Lake Reports

LONG POND, PELHAM, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	1,142	**Max. Depth (m):**	7.6	**Flushing Rate (yr^{-1})**	1.5
Surface Area (Ac.):	121	**Mean Depth (m):**	3.2	**P Retention Coef:**	
Shore Length (m):	4,800	**Volume (m^3):**	1,559,000	**Elevation (ft):**	151

TROPHIC CLASSIFICATION

Year	Trophic class
1978	OLIGOTROPHIC
2007	MESOTROPHIC

KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

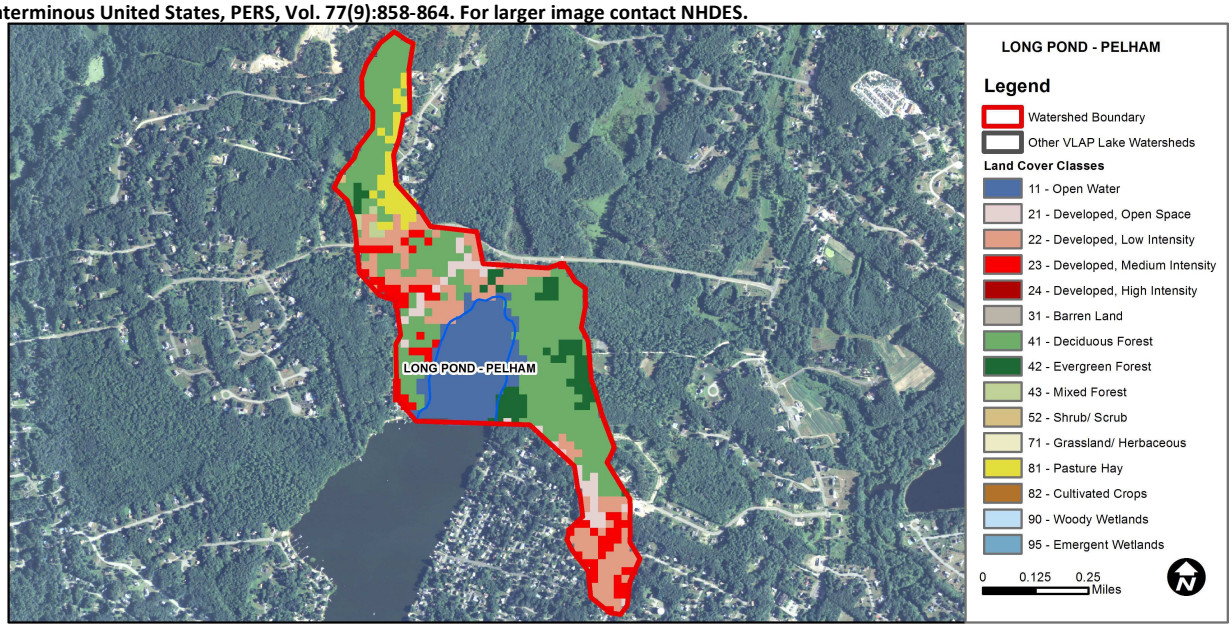
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	>/=5 samples and median is >threshold.
	pH	Good	At least 10 samples with 1 sample but < 10% of samples exceeding criteria.
	D.O. (mg/L)	Cautionary	< 10 samples and 1 exceedance of criteria. More data needed.
	D.O. (% sat)	Cautionary	< 10 samples and 1 exceedance of criteria. More data needed.
	Chlorophyll-a	Slightly Bad	>5 samples and median is > threshold.
Primary Contact Recreation	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).

BEACH PRIMARY CONTACT ASSESSMENT STATUS

LONG POND - TOWN BEACH	E. coli	Bad	>/=1 exceedance(s) of geometric mean criterion and/or >/=2 exceedances of single sample criterion, with 1 or more >2X criteria.
LONG POND - TOWN BEACH	Cyanobacteria	Bad	Cyanobacteria bloom(s).

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



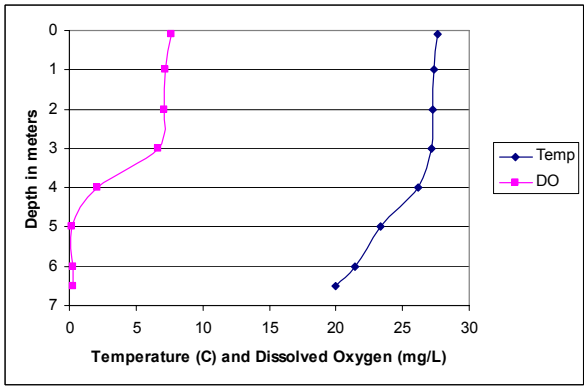
Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	18	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	4.6	Deciduous Forest	41.43	Pasture Hay	4.37
Developed-Low Intensity	16.3	Evergreen Forest	6.91	Cultivated Crops	0
Developed-Medium Intensity	7.83	Mixed Forest	0.69	Woody Wetlands	0
Developed-High Intensity	0	Shrub-Scrub	0.12	Emergent Wetlands	0

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
LONG POND, PELHAM, NH
2012 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphic*)

- **CHLOROPHYLL-A:** Chlorophyll levels decreased greatly from 2011 however were still indicative of algal bloom conditions. The pond has a history of cyanobacteria blooms.
- **CONDUCTIVITY/CHLORIDE:** Conductivity and chloride were elevated and well above NH lake median values.
- **TOTAL PHOSPHORUS:** Phosphorus levels were elevated and much greater than the NH lake median.
- **TRANSPARENCY:** Transparency was slightly higher than in 2011 likely due to the decrease in chlorophyll levels.
- **TURBIDITY:** Turbidity levels were elevated likely due to algal growth.
- **pH:** pH levels were sufficient to support aquatic life.
- **RECOMMENDED ACTIONS:** The pond's watershed is heavily urbanized in Massachusetts and portions of New Hampshire. The elevated conductivity, chloride, phosphorus, and chlorophyll are indicative of urbanized watersheds however, efforts should be made to address pollution sources such as stormwater runoff. This would involve working with local governments, watershed residents and lake associations and potentially applying for grant assistance to develop a watershed management plan. For more information on grants and developing watershed management plans, visit DES' Watershed Assistance Section's website at http://des.nh.gov/organization/divisions/water/wmb/was/index.htm.

Dissolved Oxygen & Temperature Profile



Long Pond Phytoplankton Population

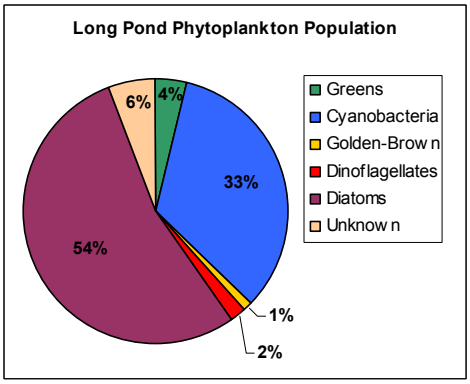


Table 1. 2012 Average Water Quality Data for LONG POND

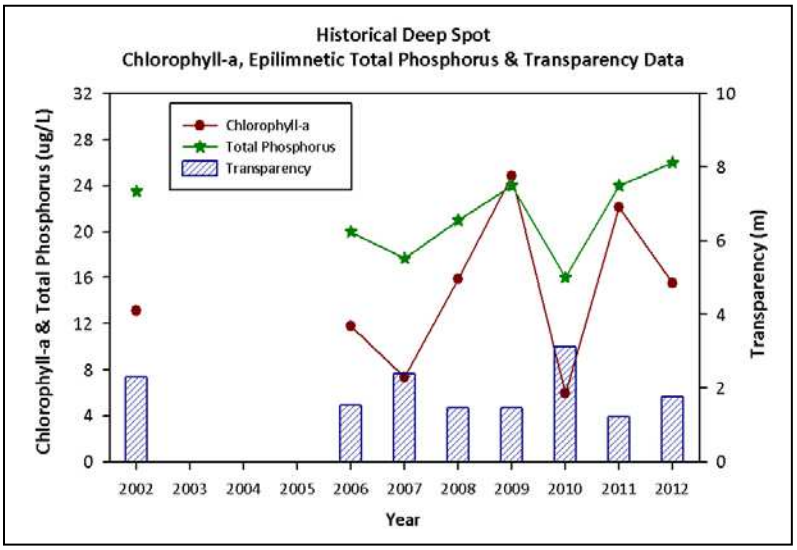
Station Name	Alk.	Chlor-a	Chloride	Cond.	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	ug/l	m		ntu	
						NVS	VS		
Deep Epilimnion	21.0	15.5	80	309.0	26	1.75	1.75	3.93	7.11
Deep Hypolimnion				317.0	35			3.50	6.81

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	N/A	More data necessary to establish trends.
Transparency	N/A	More data necessary to establish trends.
Phosphorus (epilimnion)	N/A	More data necessary to establish trends.



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